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Bandyopadhyay

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[54] **SILICON MEMS-BASED POLYMER
EJECTOR FOR DRAG REDUCTION OF
UNDERSEA VEHICLES**

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[51] Int. Cl.⁷ **B63B 1/34**

[52] U.S. Cl. **114/67 R; 114/67 A**

[58] Field of Search **114/67 R, 67 A**

[56] **References Cited**

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[57] **ABSTRACT**

A polymer ejector system for reducing drag on an external surface of an underwater vessel includes a base portion mounted in an exterior surface of the underwater vessel, the base portion including an arcuate inner wall. A flexible lip portion is positioned above the base portion and spaced apart therefrom. The lip portion has an outer surface substantially coplanar with an outer surface of the underwater vessel, an arcuate inner wall, and is tapered at a distal end of the lip. This lip may be actively moved by means of MEMS deposited electrodes to control the passageway mentioned next. A passageway is formed between and defined by the inner wall of the lip and the inner wall of the base portion, such that the passageway terminates at the outer surface of the underwater vessel and substantially tangent thereto. The ejector may be constructed from single crystal silicon by so called MEMS (Micro-Electro-Mechanical Systems) methods.

14 Claims, 3 Drawing Sheets

